Technology and Innovation of Sacrificial Anodes for Concrete Structures

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The damages caused by corrosion of steel reinforcements in concrete and the premature deterioration caused by traditional repairing of concrete structures have drawn a lot of attention to the issue of protecting concrete structures.
Cathodic protection of concrete structures is an important technique for mitigating corrosion of steel in concrete especially in salt-contaminated structures and has attracted the interest of users in this field. Consequently, three editions of the ISO 12696 standard have been issued in the last 12 years, and each edition has been updated with new information and clarifications. The most up-to-date edition was released in 2022.
Sacrificial anodes are one of the most popular cathodic protection anodes for concrete structures due to a number of benefits. There is no requirement for an external power supply when employing sacrificial anodes, and the lack of rectifiers shields the system from vandalism and lightning damage. Anode connections can be concealed in concrete, short circuits are not an issue, and overprotection, which may result in hydrogen embrittlement and stress corrosion cracking of prestressed steel, is not as much of a concern once it has been installed.
In this field, various technologies are used in the production of sacrificial anodes, and interesting innovations have also been created in this field. In this presentation, while reviewing the types of sacrificial anodes for the protection of steel in concrete, some innovations in this field will also be covered.